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EVALUATING THE PERFORMANCE OF THE INTERVA MODEL FOR ESTABLISHING PULMONARY TUBERCULOSIS AS A CAUSE OF DEATH IN DABAT DISTRICT

A THESIS PAPER SUBMITTED TO INSTITUTE OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEATLH SCIENCE, UNIVERSITY OF GONDAR, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN PUBLIC HEALTH.

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APPROVED BY THE EXAMINING BOARD

HEAD, INSTITUTE OF PUBLIC HEALTH

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EXAMINER

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ABSTRACT

Background: Developing countries generally lack complete vital registration systems that can produce cause of death information, including tuberculosis-specific mortality, for health planning in their populations. As an alternative, verbal autopsy data are often reviewed by physicians to assign the probable cause of death. But this method is a time- and resource-intensive process and is liable to produce inconsistent results. This has led to several initiatives for establishing causes of death using expert algorithms such as the InterVA model.

Objective: To evaluate the performance of the InterVA model for establishing pulmonary tuberculosis as a cause of death in Dabat district.

Methods: Community-based cross-sectional study was conducted from March– April, 2012. All deceased adults aged ≥14 years who died in the period from 2010-2011 were included in the study. Data were collected by trained field data collectors by using pre-tested and modified WHO designed verbal autopsy questionnaire. The verbal autopsy interviews were interpreted by physicians and by the model, and tuberculosis-specific mortality fraction was derived by both approaches. Cohen's kappa statistic, receiver operating characteristic curves, sensitivity, and specificity values were applied to compare agreement between the InterVA model and physicians.

Results: A total of 408 adult deaths were identified in the study area. The proportion of tuberculosis-specific mortality was established to be 36.0% and 23.0% by InterVA model and physicians respectively. The InterVA model predicted TB as a cause of death with the probability of 0.80 (95% CI: 0.75, 0.85). Classifying all deaths as tuberculosis and non-tuberculosis, the sensitivity value is 0.82 and specificity is 0.78. Moderate agreement was found between the model and physician to assign TB as a cause of deaths (kappa = 0.5; 95% CI: 0.4, 0.6).

Conclusion: This study revealed that the InterVA model enabled the timely measurement of tuberculosis-specific mortality at a community level to provide policymakers with the much-needed information to allocate resources for health intervention.

Key Words: ***Tuberculosis, Cause of Death, Verbal Autopsy, InterVA Model*****.**

ACRONYMS

COD	Cause of Death
DOTS	Directly Observed Treatment Short-course
HDS	Health and Demographic Surveillance
InterVA	Interpreting Verbal Autopsy
ROC	Receiver Operating Characteristic
TB	Tuberculosis
TBm	Tuberculosis deaths ascertained by InterVA model
TBp	Tuberculosis deaths established by physician
VA	Verbal Autopsy
WHO	World Health Organization

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1. INTRODUCTION

1.1 STATEMENTS OF THE PROBLEM

Developing countries generally lack consistent, timely, and reliable information on tuberculosis (TB)-specific cause of death (COD) in their populations (1). Vital registration data are incomplete and capture few physician-certified deaths (2). Nevertheless, any meaningful health intervention policy and/or program must be informed by the CODs that are of greatest importance locally. Verbal autopsy (VA) is the useful tool in such settings to establish probable COD by interviewing of close caregiver, or anyone who can provide a witness for the death event (3).

There have been various attempts at validating physician review, (4, 5) but there are several concerns that arise from using this methodology to interpret VA data. First, physicians may differ systematically in their methods of interpreting VA data based on their training, experience, and/or perceptions of local epidemiology. Hence, there may be inter- and intra-coder variability between physicians that may lead to inconsistencies in COD data and also hinder reliable temporal and spatial comparisons of mortality (6, 7). Second, the physician review process often demands a considerable amount of physician time and can incur considerable costs for remunerating these physicians (8).

Therefore, as a means of promoting effective and sustainable TB control and to influence policy decisions, TB mortality information is one of the critical areas for evaluating the progress and impact of interventions. In response to this, the current study was designed to evaluate the performance of the InterVA model as a physician alternative method for generating TB-specific data from VAs in Dabat district.

1.2 LITERATURE REVIEW

Various alternative methods to physician review of VA data have been introduced. These include the use of expert/data-driven algorithms, neural networks, and InterVA model. Algorithms and neural networks are said to have the advantage of being quicker, more transparent, and more consistent in comparison to physician review (9-11). However, both methods have been explored inconclusively in terms of their validity, and thus their use is still not widespread (9, 11). The use of the InterVA model to interpret VA data is a relatively new methodology that recently has been successfully explored in a number of settings (12-14). This computer-based probabilistic program is based on Bayes' probability theorem and is said to have the advantage of achieving maximum consistency in interpreting VA data (12, 14, 15). It also requires minimal time and labor resources, especially in comparison to the physician review method. Moreover, it is freely available in the public domain, making it ideal for resource-constrained settings (16).

According to rural community based validation study conducted in Bujira, Ethiopia (12), InterVA model has established TB as a COD for 33% of all deaths. Another study carried out in Keniya (17) has shown 31% of all deaths were due to TB as assigned by the InterVA model while the physicians for only 9.9%. According to the physicians, 6.4% of deaths were due to tuberculosis compared with 21.3% according to the model in South African study (18).

Many studies have investigated the validity of InterVA model as a tool for assigning COD (14, 19). A validation study in Keniya (20) has indicated the overall diagnostic ability of the model in probability to be 0.82 when compared against physician. Moderate level of agreement with kappa = 0.42; 95% CI: (0.37, 0.48) was found between the physician and the model to assign TB as a COD in Kenyan comparative validation study (21).

The aim of the current study was to evaluate the performance of the InterVA model as a physician alternative method for generating TB-specific data from VAs in Dabat district.

1.3 JUSTIFICATION OF THE STUDY

In resource-constrained settings, including Ethiopia, vital registration infrastructure is poor and access to health care facilities with adequate diagnostic facilities is very limited. The validity of hospital-based data is also severely limited and represents only a fraction of the actual burden since a considerable proportion of deaths occur at home. This weakness in the system inevitably affects data on TB-related mortality and therefore other sources of data must be used.

As a means of promoting effective and sustainable TB control and to influence policy decisions, monitoring TB mortality is one of the critical areas for evaluating the progress and impact of interventions. Such information is partly obtained from population-based systematic retrospective assessment of COD using verbal autopsy method.

In response to this, the current study was designed to evaluate the performance of the InterVA model as a physician alternative method for generating TB-specific data from VAs in Dabat district. It was also intended to complement the death component of the ongoing TB-surveillance project at the district.

2. OBJECTIVE

To evaluate the performance of the InterVA model for establishing pulmonary tuberculosis as a cause of death in Dabat district

3. METHODOLOGY

3.1 Study design

Community-based cross-sectional study was conducted to assess TB-specific COD at Dabat district, northern Ethiopia from 01 March– 30 April, 2012.

3.2 Study area

This study was carried out at Dabat district in northern Ethiopia. The district is administratively located at 75 km north of Gondar town with an area of 1,187.93 square kilometers. It has a population density of 122.49. A total of 31,111 households were counted in this district, resulting in an average of 4.68 persons to a household, and 30,293 housing units. The local communities were largely depending on subsistence agriculture economy.

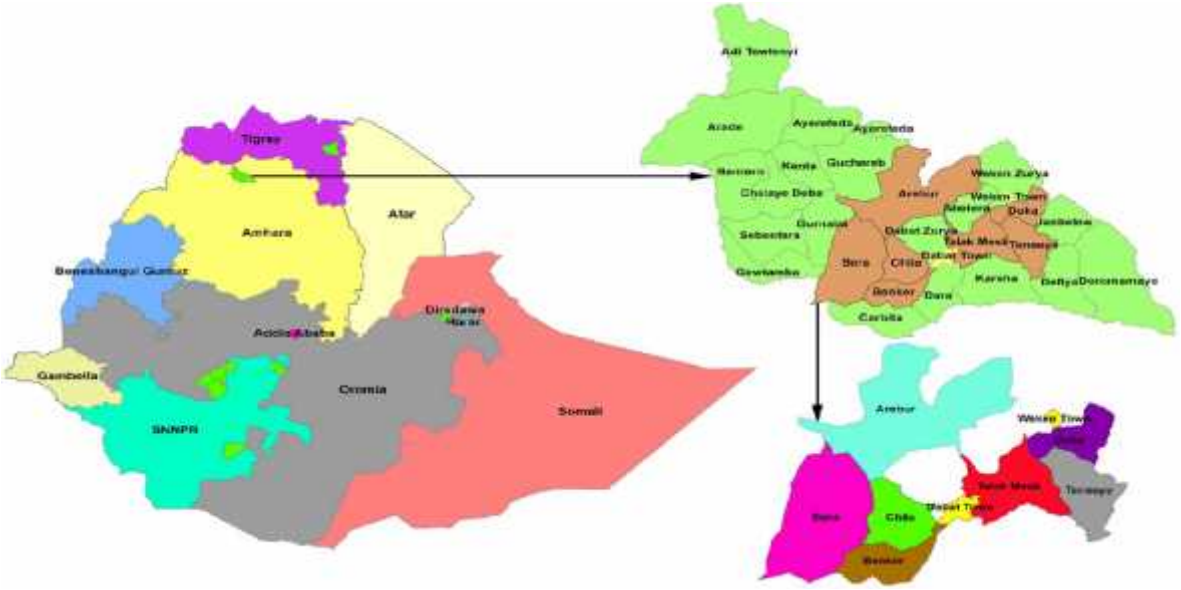

Fig. 1 Map of the study area at Dabat district in Northwest Ethiopia. Area shaded with different colors-Dabat HDSS. [Source: adapted from ref.22]

The district has two health centers, three health stations, and twenty-nine health posts providing health services for the community. Only the two health centers provide DOTS for TB cases. This study covered an on-going TB health and demographic surveillance (HDS) sites in the district. (Figure 2 above).

3.3 Source population

All deceased adults aged ≥14 years in the last two years (from 2010 - 2011) at the study area were the source population.

3.4 Study population: All deceased adults aged ≥14 years in the last two years at the study area were the study population. The period from 2010 - 2011 was preferred in order to get adequate deaths without much implication on recall bias. It is believed that adult deaths are remembered very well.

Inclusion criteria: Deceased adults aged ≥14 years in the last two years who were permanent residents of the study area were included.

Exclusion criteria: Deceased adults who had no close relative, friend or neighbor of the deceased to participate in the study.

3.5 Data collection procedure/Verbal autopsy procedure

Pre-tested and modified WHO and INDEPTH (23, 24) designed VA questionnaire (was used to collect data. The VA questionnaire included open narrative, medical histories, and closed questions. The narrative section was used to record free explanations of the circumstances of death, the medical histories section was used to extract data from medical certificates, and the closed section was dealt with specific signs, symptoms and conditions leading to death.

Three supervisors and nine data collectors who had rich experience of field data collection in an on-going HDS project at the district participated in the data collection processes. The data collectors were interviewed close relative, friend or neighbor of the deceased person who witnessed the death after obtaining verbal consent. Considering the usual mourning period in the study area, data were collected after 45 days for recent death events.

3.6 Data quality assurance

The VA questionnaire was translated into Amharic, the official language, and back to English to keep the consistency of the questions. Training of data collectors and supervisors was emphasized on issues such as preferred respondents, approaching grieving respondents, time of interviews and compiling narrative responses (ensuring that duration, frequency, severity and sequence of symptoms were mentioned). The principal investigator and supervisors coordinated the interviewing process, made spot-checking and reviewed the completed questionnaires on daily bases to ensure completeness and consistency of the data collected and conducted random quality checks by re-interviewing about 10% of the respondent. The VA questionnaire was pre-tested to identify potential problem areas, unanticipated interpretations and cultural objections to any of questions in 25 respondents having similar characteristics with the study subjects nearby Dabat district. Based on the pre-test results, the questionnaire was adjusted contextually. Data entry was done by the principal investigator and other independent body and then compared to check for any variation in results.

3.7 Interpretation of VA questionnaires

The InterVA model and physician processed the same basic data from VA questionnaire independently.

Physician's Interpretation

Two independent physicians reviewed each VA questionnaire independently to assign a single COD based on ICD-10. The ICD-10 list has unique codes for diseases, signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury (15). The physicians subsequently met to reach consensus for cases where there were differences of opinion. If no physician consensus was reached after discussion, the COD was regarded as indeterminate.

The physicians were trained in procedures to assign COD and given details of study area and study population. They were briefed on the common local terms used to express signs, symptoms, causes and conditions of death. The physicians were not

specifically briefed about the probabilistic model, in order to preserve their independence.

InterVA Model's Interpretation

The InterVA model is a standard model designed for COD determination in low- and middle-income countries and it has the advantage of consistency over time and place (21). The model has subsequently been evaluated in a number of settings (18, 19).

The model relates a range of input indicators (including age, gender, physical signs and symptoms, medical history, and the circumstances of death) to likely CODs using Bayesian probabilities (15). The model results up to three likely causes per case when possible; each associated with a quantified likelihood. "Certainty", the average of the three likelihood causes, measures of the confidence with which the model has reached its conclusion (16).

In this study, high prevalence of Malaria and HIV/AIDS were used as basic epidemiological parameters for the model as their prevalence varies from place to place. Data were entered case-by-case into Microsoft visual FoxPro window of InterVA version 3.2 to assign the possible COD responsible for the bereavement of each individual.

Comparison of the InterVA Model against the Physician

The most probable CODs assigned by the model were considered to facilitate comparison with the single CODs which were assigned by the physician.

All CODs in both methods were re-categorized into 16 main groups for two reasons. First, to have meaningful comparable COD categories between both methods. Some categories common to both methods were retained. For instance, malaria and meningitis, which are common to both physician review and InterVA, were retained as stand-alone causes. Cases where there were no direct correlates were collapsed and/or re-categorized the COD into cause groups to match each other in a broad sense. For instance, the InterVA model has only one broad category of maternity-related deaths representing all types of pregnancy-related deaths. However, the physicians coded

causes such as eclampsia and antepartum and post-partum hemorrhage. Such causes were recoded into one broad category of maternity-related deaths to facilitate comparison with the corresponding InterVA category. Frequently occurring conditions, such as pulmonary tuberculosis, HIV/AIDS, and pneumonia, were left as stand-alone causes. Second, it was more important that the model and the physicians arrived at broad agreement in identifying COD groups with the greatest public health importance at population level, rather than individual-level causes. Hence, causes such as kidney disease and cancers were recoded as chronic diseases, while causes such as rabies, tetanus, and typhoid were grouped into other acute/infectious diseases.

Then deaths were aggregated case-by-case to their respective COD categories to determine the cause-specific mortality fractions at community level by using both the InterVA model and physician review.

Receiver operating characteristic (ROC) curves, probability, sensitivity, specificity and Cohen's kappa statistic with 95% CI were applied to compare agreement between InterVA model and Physician.

3.8 Operational definitions

Economic status – the economic position of the deceased ranked as poor versus rich based on expenditure–based poverty score. Those scored above the mean were categorized as rich.

InterVA model – a probabilistic model based on Bayes' theorem that can be used to determine the COD for each case by processing successive indicators (circumstances, signs, and symptoms) to generate up to three likely COD with corresponding likelihoods and an overall certainty factor for each death.

Tuberculosis-specific COD – the proportion of deaths that occurred due to tuberculosis alone from all-cause deaths

Verbal autopsy – an epidemiological tool that is used to ascribe COD from bereaved relatives or associates whenever medical confirmation of the COD is absent or incomplete.

3.9 Ethical considerations

This study protocol was reviewed and approved by Institutional Ethical Review Board of University of Gondar via Institute of Public Health. Then, written informed consent was obtained from participant who was close relative, friend or neighbor of the deceased after explaining the purpose and the procedures of the study. Confidentiality was granted for information collected from each study participants. Those study participants found sick during data collection were referred to the nearest health institution for medical treatment.

3.10 Dissemination of results

Findings of the study were submitted to Institute of Public Health and Dabat Research Center, University of Gondar. It will be presented in different seminars and conferences. It will also be communicated to any organizations concerned with monitoring and evaluation of TB-specific mortality. Peer reviewed publication will be considered.

RESULTS

Socio-demographic Characteristics of all Adult Deaths

A total of 408 VA interviews were successfully completed and reviewed by both InterVA model and physician. Slightly higher proportion of deaths was identified among females 222 (54.4%). Two hundred eighty one (68.9%) of the deceased were 50 and above years of age. Majority of deaths occurred among married and farmers which was 325 (79.7%) and 298 (90.0%) respectively. According to level of education, 308 (73.0%) of the deceased were illiterate. Most of the deaths occurred among farmers followed by family size of 1-4 people sharing the same living room which was 298 (90.0%) and 282(69.1%) respectively. Christianity was the dominant religion comprising of 392 (96.1%). Four hundred four (99.0%) of them were Amhara by ethnicity. More than two-thirds of all deaths, 277(67.9%), occurred among economically poor people (Table 1).

Table1. Percentage distribution of all adult deaths by socio-demographic characteristics at Dabat district from 2010-2011

Socio-demographic characteristics	No (N=408)	Percent
Sex		
Female	*222*	*54.4*
Male	*186*	*45.6*
Age in years		
15-49	*127*	*31.1*
50-64	*140*	*34.3*
≥65	*141*	*34.6*
Marital status		
Single	*83*	*20.3*
Married	*325*	*79.7*
Educational status		
Illiterate	*308*	*73.0*
Literate	*100*	*27.0*
Occup. status		
Farmer	*298*	*90.0*
Gov't/Priv't employee	*110*	*10.0*
Family size		
1-4	*282*	*69.1*
≥5	*126*	*30.9*
Religion		
Christian	*392*	*96.1*
Muslim	*16*	*3.9*
Economic status		
Rich	*131*	*32.1*
Poor	*277*	*67.9*
Ethnicity		
Amhara	*404*	*99.0*
Tigray	*4*	*1.0*

Description of TB-specific Mortality Rate

For all 408 deaths the first most probable COD ascertained by InterVA model was considered in order to compare the result with single COD assigned by physician. Two physicians carefully reviewed all the VA interviews and established TB as a COD for 94 (23.0%) of the cases while the InterVA model for 147 (36.0%).

The probabilistic model assigned the likely CODs for all the VAs with a certainty of 75% and standard deviation 2.8.

In this study, both the InterVA model and the physicians have assigned TB-specific mortalities for 77 (18.9%) of all deaths in common. Accordingly, TB-specific mortality rate was found higher among females 46 (59.7%). Higher TB-specific mortality rate was found for both males 17(22.1%) and females 22(28.5%) aged ≥65 years (Fig. 2).

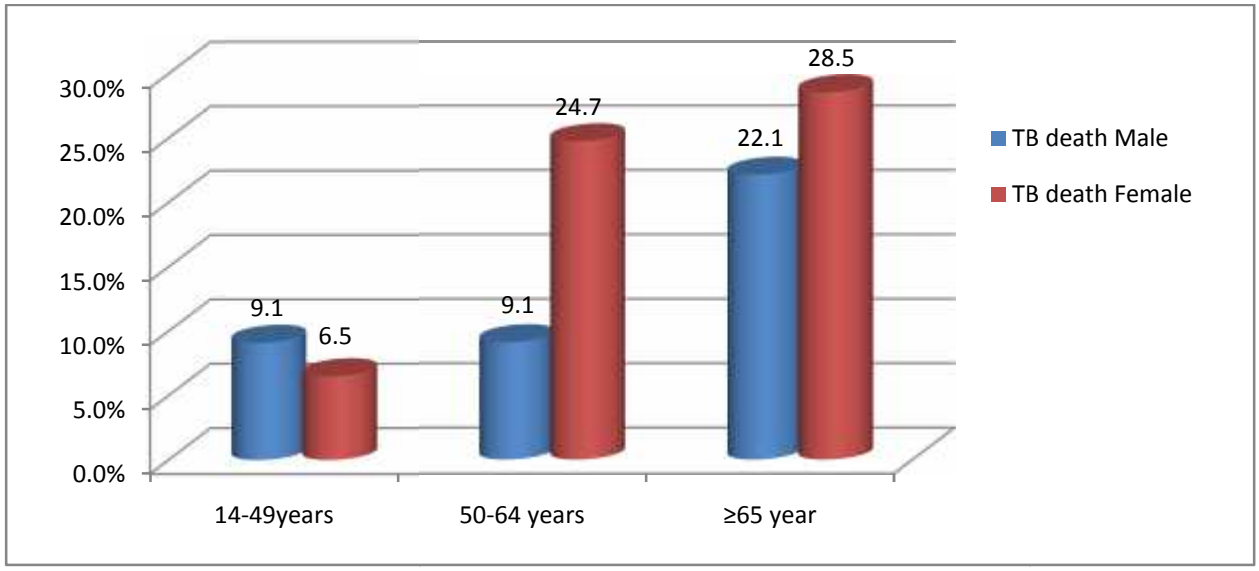

Fig.2 Age-sex specific TB mortality rate

From the total of 77 TB-specific deaths, the respondents have correctly predicted TB as a COD for 52(67.5%).

The proportion of TB-specific mortality among illiterate people was found to be 72(23.4%) when compared with non-TB deaths. Among households in which ≥5

persons live together, TB-specific mortality was found to be 49(38.9%). Seventy six (25.5%) of all deaths among farmers were identified as TB- specific deaths. Compared to non-TB deaths, higher proportion of TB-specific deaths occurred among traditional medicine users followed by those who were economically poor, 52(78.8%) and 75(27.1%) respectively (Table 2).

Table2. Percentage distribution of deaths in relation to socio-demographic characteristics in Dabat district from 2010-2011

Characteristics	TB death No. (%)	Non-TB death No. (%)
Educ. Status		
Illiterate	72(23.4)	236(76.6)
Literate	5(5.0)	95(95.0)
Family size		
1-4 persons	28(9.9)	254(90.1)
≥5 persons	49(38.9)	77(61.1)
Occup. status		
Farmer	76(25.5)	222(74.5)
Gov't/private employee	1(0.9)	109(99.1)
Residence		
Rural	58(19.7)	236(80.3)
Urban	19(16.7)	95(83.3)
Health care utilization		
Traditional medicine	52(78.8)	14(21.2)
Modern medicine	25(7.3)	317(92.7)
Economic status		
Poor	75(27.1)	202(72.9)
Rich	2(1.5)	129(98.5)

Validation Tests of InterVA model for Ascertaining TB as a COD

The area under the receiver operator characteristics (ROC) curve was calculated to measure the overall diagnostic performance (correctly diagnosing all the diseases) of

the InterVA model against physician. For a method to be highly sensitive and specific, the area under the curve should be close to one. The closer the curve follows the left-hand border and the top border of the ROC space, the more accurate the method. ROC curve has shown the InterVA model can predict TB as a COD with the probability (area under the curve) of 0.80 (95% CI: 0.75, 0.85) when compared against the physician. The model can estimate TB as a COD with 81.9% sensitivity and 77.7% specificity.

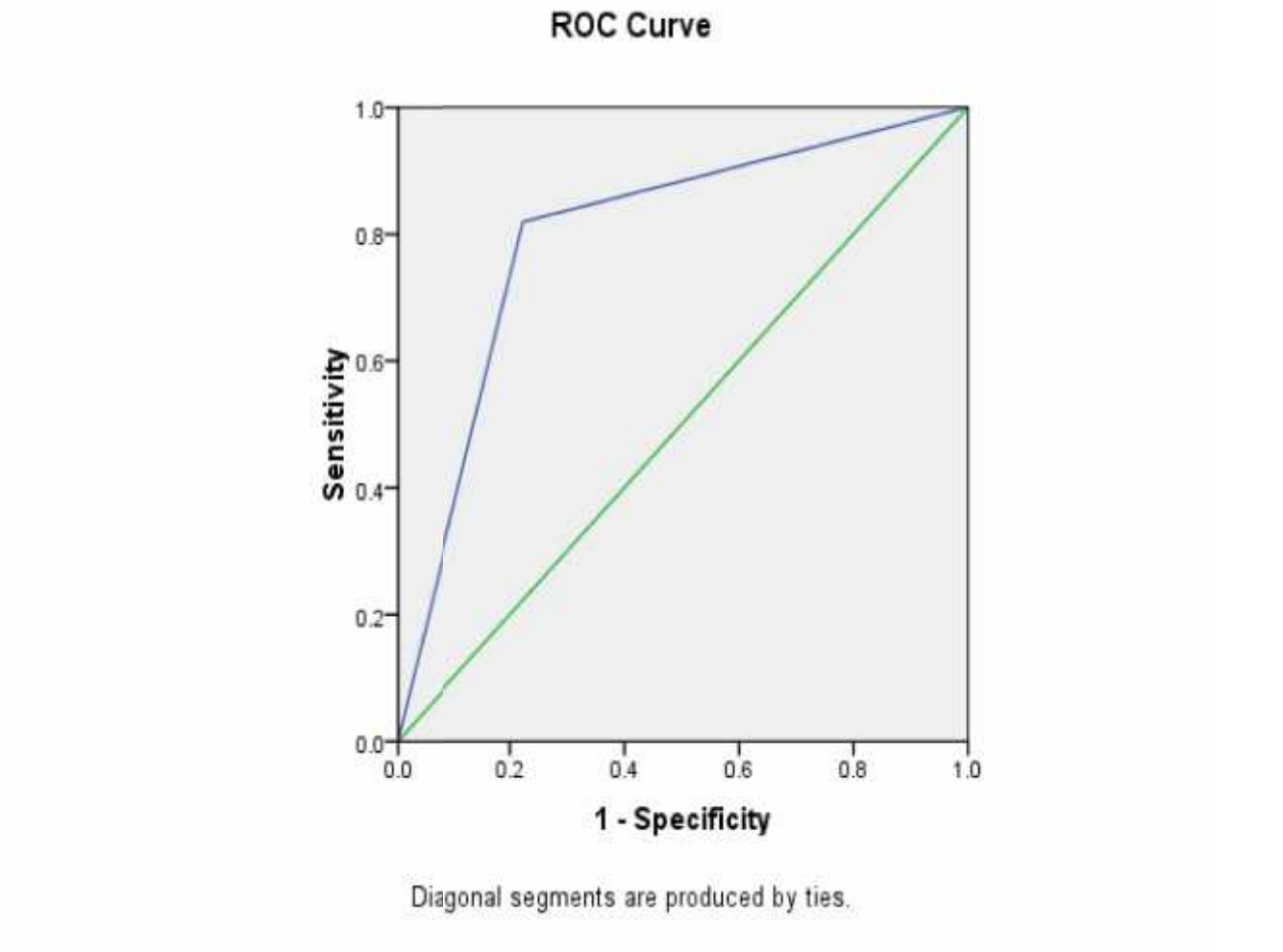

Fig.3 Comparing InterVA model against physician for ascertaining TB as a COD.

The level of agreement between the model and physician to assign TB as a COD was found to be moderate (kappa = 0.5; 95% CI: 0.4, 0.6).

DISCUSSION

This study used probabilistic InterVA model to assess TB-specific COD at Dabat district in northern Ethiopia. The model has assigned TB as a COD for 36.0% of all deaths. This finding was not much far from other related studies. According to rural community-based validation study conducted in Bujira Ethiopia (12), the model has established TB as a COD for 33% of all deaths. Another study carried out in Kenya (17) has shown 31% of all deaths were due to TB as assigned by the model. The diagnostic ability of the model to establish TB as a COD was evaluated by internally comparing its output against the physician's interpretation. The model can predict TB as a COD with the probability of 0.80 (95% CI: 0.75, 0.85) when compared against the physician. Similar study in Kenya has indicated the overall diagnostic ability of the model in probability to be 0.82, indicating good diagnostic performance of the method (20). Further studies should be conducted to prove this finding.

In this study, moderate level of agreement was found between the model and physician to assign TB as a COD (kappa = 0.5; 95% CI: 0.4, 0.6). In Kenyan study (17), almost similar finding was revealed with kappa = 0.42; 95% CI: (0.37, 0.48). This indicated over time and space consistency of the InterVA model for establishing TB as a COD.

Epidemiological and public health cause-specific mortality studies emphasize not so much on the individual's COD but on eliciting the causes that have a major impact on communities as a whole. In this study, physician review was used as a reference standard to compare InterVA. The use of physician review was the only alternative source of cause of death assessment for this study population. However, this choice has limitations. The physicians had the advantage of being able to consider detailed information by going through the questionnaire and using their clinical skills and experiences in determining CODs, they may have been influenced by their own biases, particularly for less obvious CODs for which decisions had to be made between equally likely diagnoses. This might have contributed to some of the discordance observed between the two approaches. The InterVA model represents a valuable new tool in the quest to characterize TB-specific mortality in communities without death registration. It offers two major advantages as community-level tool for identifying COD. It is much less

labour-intensive, since estimate of only 5 minutes per VA interpretation is required. At the same time, precisely the same model can be applied to VA material from a range of settings, or over extended periods of time, without introducing any inter-observer variation in interpretation. These advantages outweigh the possible losses associated with subtle interpretation carried out by physicians.

One of the possible limitations of this study could be the cross-sectional study design which may not be appropriate in order to accurately establish COD. Longitudinal study design is suggestive. The absence of some variables in the VA questionnaire is one factor challenging the accuracy of the InterVA model. The model did not employ open-ended questions which are more relevant in a society with poor knowledge of symptoms of certain disease and more local terms may be used in this case. Another limitation could be the relatively small sample size of the study might also contribute to underestimate the sensitivity and specificity values.

CONCLUSION AND RECOMMENDATION

In this study the InterVA model has shown a promising result as a community-level tool for generating TB data from VA. Further research should be conducted to further validate the InterVA model as a community-level tool to detect TB as a COD.

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ANNEX I - INFORMATION SHEET AND CONSENT FORM

Title of the Research Project: Causes of deaths and associated factors among adults died in the last two years at Dabat district, Northwest Ethiopia.

Name of Investigator: Sebsibe Tadesse

Name of the Organization: University of Gondar, College of Medicine and Health Sciences, Institute of Public Health.

Name of the Sponsor: University of Gondar

Introduction: This information sheet and consent form is prepared for the aim of explaining the research project that you are asked to join by the group of research team. The main aim of this research project is to assess causes of death and associated factors among adults died in the last two years at Dabat district, Northwest Ethiopia. This research team includes one principal investigator, nine data collectors, three supervisors and two advisors from University of Gondar.

Purpose of the Research Project: The purpose of this study is to assess causes of death and associated factors among adults died in the last two years at Dabat district, Northwest Ethiopia. This is vital input to predict the major cause of deaths and to take necessary curative, preventive and promotive measures.

Procedure: You are selected to be part of the study to give information about deceased by chance. You are kindly requested to give us the correct information about the deceased. The study participants for this study are can be close relatives, friends or neighbors of the deceased.

Risk and/or Discomfort: By participating in this research project you may feel that it has some discomfort especially wasting your time (about 30 minutes) and when we ask about you're the deceased. However, your responses will help us as inputs to find out the remarkable causes of death and associated factors responsible for adult deaths, which will be important evidence to take necessary interventions.

Benefits: If you are participating in this research project, there may not be direct benefit to you, but your participation is likely to help us as an important input to find

causes of death and associated factors responsible for adult deaths, which will be important evidence to take necessary interventions.

Incentives/Payments for Participating: You will not be provided any incentives or payment to take part in this project.

Confidentiality: The information collected from this research project will be kept confidential and stored in a file, without your name. In addition, it will not be revealed to anyone except the investigator. All the responses given by participants will be kept confidential by using key and locked system like computer pass word whereby no one will have an access to it and at the end of the data analysis the questionnaire will be burned.

Right to Refusal or Withdraw: You have a full right to refuse from participating in this research (you have a right not to respond to some or all the questions). You have also the full right to withdraw from this study at any time you wish, without losing any benefits from this project.

Person to contact: This research project will be reviewed and approved by the institutional ethical review committee of the University of Gondar via Institute of Public Health. If you want to know more information, you can contact the team of the research by the following addresses.

Principal Investigator:

Mr. Sebsibe Tadesse: Cell phone: +2519 12 89 33 04

E-mail: sbsbtadesse90@gmail.com

Advisor:

Mr. Takele Tadesse: Cell phone: +2519 20 25 67 15,

E-mail: takele_tadesse@yahoo.com

Institute of Public Health, College of Medicine and Health Science, University of Gondar

P.O. Box: 196

Gondar, Ethiopia

ANNEX VI - AMHARIC VERSION INFORMATION SHEET AND CONSENT FORM

<u>የመረጃ መስጫና ስምምነት መጠያቂያ ቅጽ፣</u>

የጥናቱ ርዕስ፣

የህብረተሰብ የሞት መንስኤ የሆኑ በሽታዎች በሰሜን ጎንደር ዞን ዳባት ወረዳ.

ዋና ተመራማሪ፣ ሰብስቤ ታደሰ

የተቋሙ ስም፣ ጎንደር ዩኒቨርሲቲ፣ ህክምናና ጤና ሳይንንስ ኮሌጅ፣ የህብረተሰብ ጤና አጠባበቅ ኢንስቲትዩት

ወጪውን የሚሸፍነው ተቋም፣ ጎንደር ዩኒቨርሲቲ

መግቢያ፣ ይህ ጥናት በሰሜን ጎንደር ዞን ዳባት ወረዳ የህብረተሰብ ሞትና መንስኤ የሆኑትን በሽታዎች ለማጥናት የተቀደ ነዉ::ይህ የማብራሪያና የስምምነት ቅጽ አሁን እርስዎ እንዲሳተፉበት የሚንጠይቅዎትን የምርምር ጥናት የሚያብራራ ነዉ:: እባክዎ በዚህ ጥናት ለመሳተፍ ከመወሰንዎ በፊት ይህንን ቅጽ መረጀ ሰብሳቢዎቹ በሚያነቡልዎት ጊዜ በጥንቃቄ በማድመጥ ጥያቄዎች ካለዎት ይጠይቁ:: በዚህ ጥናት መሳተፍ ከጀመሩ በኋላም በማንኛዉም ጊዜ ጥያቄዎች ካለዎት መጠየቅ ይችላሉ፤ ጥናቱ የሚካሄደዉ በመረጃ ሰብሳቢዎች፤ በአንድ የህብረተሰብ ጤና ሳይንስ ት/ት ክፍል ተመራቂ ተማሪ ና በሁለት የጥናቱ አማካሪዎች ነዉ::

የጥናቱ ዓላማ፣ የዚህ ጥናት ዓላማ በሰሜን ጎንደር ዞን ዳባት ወረዳ የህብረተሰብ ሞትና መንስኤ የሆኑትን በሽታዎች ለማወቅና እንድሁም ችግሩን ለመቅረፍ በሚደረገዉ ሂደት ትልቅ አስተዋጽኦ ያደርጋል:: በተጨማሪም በሀገሪቱ ለሚደረጉ ለሌሎች ተከታታይ ጥናቶች እንደ መነሻ መረጀ በመሆን ይጠቅማል::

የአሰራር ህደት፣ በዚህ ጥናት ዉስጥ ለመሳተፍ ከተስማሙ ስምምነቱን መረዳትና መስማማትዎን በፊርማ መግለጽ ይገባዎታል፡፡ ከዚህ በኋላ መረጀ ሰበሳቢዉ መጠይቁን ይጠይቅዎታል:: ስምዎን መናገር አያስፈልግዎትም፡፡ የሚሰጡት መረጀ ምስጥራዊነቱ ይጠበቃል፡፡

ሊከሰቱ ስለሚችሉ ሰጋቶች ወይም የምጆት መጓደሎች፣በዚህ ጥናት በመሳተፍዎ የተወሰነ ያለመመቻቸት ስሜት ሊሰማዎት ይችላል በተለይ የስራ ጊዜዎትን ለ30 ደቂቃ ያህል ይሻማዎታል፤ ነገር ግን ጥናቱ ከሚሰጠዉ ጥቅም አኳያ እንደሚሳተፉ ተስፋ እናደርጋለን::

ጠቀሜታ፣ በዚህ ጥናት ላይ በመሳተፍዎ ቀጥተኛ የሆነ ጥቅም ላያገኙ ይችላሉ:: የህብረተሰብ ሞትና መንስኤ የሆኑትን በሽታዎች ለማወቅና እንድሁም ችግሩን ለመቅረፍ በሚደረገዉ ሂደት ትልቅ አስተዋጽኦ ያደርጋል::

የተሳትፎ ማበረታቻዎች፤ በጥናቱ በመሳተፌዎ የሚሰጥ ምንም ዓይነት ማበረታቻ/ክፍያ የለም::

ሚስጥር ስለመጠበቅ፣ ለዚህ ጥናት የሚሰበሰብ መረጀ በሚስጥር ይጠበቃል:: የሚሰበሰበዉ መጠይቅ የእርስዎ ለመሆኑ መለያ አይኖረዉም:: መረጃዉ በዋናዉ ተመራማሪዉ ፋይል ተደርጎ በቁልፍ የሚቀመጥ በመሆኑ ሌላ ሰዉ ሊያገኘዉ አይችልም::

በጥናቱ ያለመሳተፍ ወይም ራስን ከጥናቱ የማግለል መብት፣ በጥናቱ ላለመሳተፍ ከፈለጉ በዚህ ጥናት ያለመሳተፍ ሙሉ መብት አለዎት:: ከመጠየቁ ዉስጥ ጥቂት ጥያቄዎችን ወይም በሙሉ ያለመመለስ ሙሉ መብት አለዎት::

ለተጨማሪ መረጃ፣ ይህ የምርምር ፕሮጀክት በጎንደር ዩኒቨርሲቲ የስነ-ምግባር ኮሚቴ ተከልሶ የሚፀድቅ ይሆናል:: ስለዚህ ጥናት ተጨማሪ መረጃ ከፈለጉ በማንኛዉም ጊዜ የሚከተሉትን ሰዎች ማነጋገር ይችላሉ::

<u>ዋና ተመረማሪ</u>፣ አቶ ሰብስቤ ታደሰ ስ. ቁ፣ +2519 12 89 33 04

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በጎንደር ዩኒቨርሲቲ፣ የህክምናና ጤና ሳይንስ ኮሌጅ፣ የህብረተሰብ ጤና አጠባበቅ ኢንስቲትዩት
ፖስታ. ሣ. 196
<u>ጎንደር፣ ኢትዮጵያ</u>

ANNEX II - VERBAL AUTOPSY QUESTIONNAIRE

UNIVERSITY OF GONDAR, COLLEGE OF MEDICINE AND HEALTH SCIENCES,

INSTITUTE OF PUBLIC HEALTH

INFORMED CONSENT STATEMENT

Hello. Good morning/good afternoon? My name is_____.
I am a data collector for the research to be conducted by Sebsibe Tadesse, a student of University of Gondar, Institute of Public Health in Master of Public Health [track-General]. He is conducting a study on causes of death and associated factors among adults died in the last two years at Dabat District. I would very much appreciate your participation in this effort. I want to ask you about the circumstances leading to the death of the deceased. Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of this information-collection activity.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all. However, we hope that you will participate in this survey since the results will help the government improve health and health-related services for people. It needs a maximum of 30 minutes to complete the whole interviewing processes.

At this time, do you want to ask me anything about the purpose or content of this interview? May I begin the interview now?

Signature of participant _____

Signature of interviewer:_____ Date:_____

Questionnaire code number _____

S. N	QUESTIONS	RESPONSE CATEGORY	ANSWER	REMARK
Q	**SECTION 1. INFORMATION OF RESPONDENT**			
1.	Respondent's address	1.House number 2. Kebele 3. Mobile phone		
2.	What is your relationship to the deceased?	1. Father/Mother 2. Daughter/son 3. Sister/Brother 4.Grandmother/Grandfather 5. Spouse 6. Neighbor 7. Aunt/Uncle 8. Other		
3.	Did you live with the deceased in the period leading to her/his death?	1. If yes, continue. 2. If no, choose anyone else who lived with the deceased in the period leading to death (**if available).**		
4.	Describe what previously known medical conditions the deceased had; injuries and accident that the deceased Suffered; and signs and symptoms that the deceased had showed when he or she was ill.	1. Previously known medical conditions the deceased had		
		2. Injuries and accident that the deceased suffered		
		3.Signs and symptoms that 4.The deceased had showed when he or she was ill		
5.	Did health care worker tell you the cause of death?	1. No 2. Yes, If yes, specify the cause.		
6.	Assign your perceived cause of death.	1. First cause of death 2. Second cause of death		
7.	Where did the death occur?	1. At home 2. At health institution 3. Other 4. Don't know		
	SECTION 2. DATA ABSTRACTED FROM DEATH/OTHER HEALTH CERTIFICATE			
1.	Do you have death certificate of the deceased?	1. Yes 2. No 3. Don't know		
2.	Can I see the death certificate?	1. No 2. Yes. If yes, 3. Record date, place, age, and cause (immediate and underlying) of death per death certificate		
3.	Do you have other health	1. Yes 2. No		

	records available?	3. Don't know		
4.	Can I see the health records certificate?	1. No 2. Yes. If yes, for each type of health record summarize details for last 2 visits (if more than 2**)** as:		
		1. Hospital/health center prescription (relevant information)		
		2.Treatment cards (relevant information)		
		3. Hospital/health center discharge (relevant information)		
		4. Laboratory results (relevant information)		
	SECTIOPN 3. INDICATORS RELATING TO A PARTICULAR DEATH			
1.	Was this an elder 65+ years	1. Yes 2. No		
2.	Was this an adult 50-64 years	1. Yes 2. No		
3.	Was this a female 15-49 years	1. Yes 2. No		
4.	Was this a male 15-49 years	1. Yes 2. No		
5.	Was she pregnant at death	1. Yes 2. No		
6.	Did pregnancy end within 6 weeks	1. Yes 2. No		
7.	Did final illness last at least 3 weeks	1. Yes 2. No		
8.	Did final illness last < 3 weeks	1. Yes 2. No		
9.	Was death very sudden or unexpected	1. Yes 2. No		
10	Was death during wet season	1. Yes 2. No		
11	Was death during dry season	1. Yes 2. No		
12	Was he or she in a transport accident	1. Yes 2. No		
13	Did he or she drown	1. Yes 2. No		
14	Had he or she fallen recently	1. Yes 2. No		
15	Any poisoning, bite, sting	1. Yes 2. No		
16	Was he or she a known smoker	1. Yes 2. No		
17	Any obvious recent injury	1. Yes 2. No		
18	Was he or she known to drink alcohol	1. Yes 2. No		
19	Any suggestion of homicide	1. Yes 2. No		
20	Any convulsions or fits	1. Yes 2. No		
21	Any diagnosis of epilepsy	1. Yes 2. No		
22	Any headache	1. Yes 2. No		
23	Was there paralysis on both sides	1. Yes 2. No		
24	any paralysis/ weakness on 1 side	1. Yes 2. No		

25	Any stiff neck	1. Yes	2. No		
26	Any oral candidiasis	1. Yes	2. No		
27	Any rigidity/lockjaw	1. Yes	2. No		
28	Abnormal hair colouring	1. Yes	2. No		
29	Any coughing with blood	1. Yes	2. No		
30	Any chest pain	1. Yes	2. No		
31	Was there a cough for > 3 wks	1. Yes	2. No		
32	Was there a cough for up to 3 wks	1. Yes	2. No		
33	Any productive cough	1. Yes	2. No		
34	Any rapid breathing	1. Yes	2. No		
35	Any breathlessness on exertion	1. Yes	2. No		
36	Any breathlessness lying flat	1. Yes	2. No		
37	any difficulty breathing	1. Yes	2. No		
38	Any breast lump or lesion	1. Yes	2. No		
39	Any wheezing	1. Yes	2. No		
40	Any cyanosis	1. Yes	2. No		
41	Any abdominal mass	1. Yes	2. No		
42	Any abdominal pain	1. Yes	2. No		
43	Any diarrhoea with blood	1. Yes	2. No		
44	Any vomiting with blood	1. Yes	2. No		
45	Any acute diarrhoea (< 2wks)	1. Yes	2. No		
46	any persistent diarrhoea (2-4 wks)	1. Yes	2. No		
47	Any chronic/recurrent diarrhoea (4+wks)	1. Yes	2. No		
48	any abdominal swelling	1. Yes	2. No		
49	Any vomiting	1. Yes	2. No		
50	Any yellowness/ jaundice	1. Yes	2. No		
51	Any abnormality of urine	1. Yes	2. No		
52	Any urinary retention	1. Yes	2. No		
53	Any haematuria	1. Yes	2. No		
54	Any swelling of ankles/legs	1. Yes	2. No		
55	No bilateral swelling of ankle	1. Yes	2. No		
56	Any skin lesions/ulcers	1. Yes	2. No		
57	Any rash (non-measles)	1. Yes	2. No		
58	Any herpes zoster	1. Yes	2. No		
59	Any measles rash	1. Yes	2. No		
60	Any excessive night sweats	1. Yes	2. No		

61	Any excessive water intake	1. Yes 2. No		
62	Any excessive urination	1. Yes 2. No		
63	Any excessive food intake	1. Yes 2. No		
64	Any acute fever	1. Yes 2. No		
65	Any persistent fever (> 2 week)	1. Yes 2. No		
66	Any enlarged/swollen glands	1. Yes 2. No		
67	Any facial swelling	1. Yes 2. No		
68	Was there a coma > 24hours	1. Yes 2. No		
69	Any weight loss	1. Yes 2. No		
70	Any anaemia/ paleness	1. Yes 2. No		
71	Any drowsiness	1. Yes 2. No		
72	Any delayed/ regressed development	1. Yes 2. No		
73	Any diagnosis of asthma	1. Yes 2. No		
74	Any diagnosis of diabetes	1. Yes 2. No		
75	Any diagnosis of heart disease	1. Yes 2. No		
76	Any diagnosis of HIV/AIDS	1. Yes 2. No		
77	Any diagnosis of hypertension	1. Yes 2. No		
78	Been discharged from hospital very ill	1. Yes 2. No		
79	Any suggestion of suicide	1. Yes 2. No		
80	Any surgery just before death	1. Yes 2. No		
81	Any diagnosis of TB	1. Yes 2. No		
82	Was he or she adequately vaccinated	1. Yes 2. No		
83	Any diagnosis of liver disease	1. Yes 2. No		
84	Any diagnosis of cancer	1. Yes 2. No		
85	Any diagnosis of kidney disease	1. Yes 2. No		
86	Any diagnosis of malaria	1. Yes 2. No		
87	Any heavy bleeding before/after delivery	1. Yes 2. No		
88	Was there prolonged labour > 24 hours	1. Yes 2. No		
89	Were there convulsions during delivery	1. Yes 2. No		
90	Was the baby born early < 34 weeks	1. Yes 2. No		
91	Was this a multiple birth	1. Yes 2. No		
	SECTION 4. INFORMATION OF THE DECEASED			
1.	Age	1. 14-49 years 2. 50-64 years 3. ≥65 years		
2.	Sex	1. Male 2.Female		
3.	Religion	1. Christian 2. Muslim 3. Other		

4.	Ethnicity	1. Amhara 2.Tigray 3. Other		
5.	Marital status	1. Married 2. Single		
6.	Family size	1. 1-4 persons 2. ≥5 persons		
7.	Educational status	1. Illiterate 2. Literate		
8.	Occupational status	1.Farmer 2.Gov't/Priv't company employee		
9.	Residence	1. Urban 2. Rural		
10.	Health service utilization	1. Traditional healer 2. Modern medicine		
11.	Average distance between home and health care institution	1. ≤10 km 2. >10 km		
12	**Substance abuse behavior**			
	1. Did s/he drink alcohol?	1. Yes 2. No 3. Don't know		
	2. How long had s/he been drinking?	1. For ____years 2.Don't know		
	3. How often did s/he drink alcohol?	1. Daily 2. Weekly 3. Don't know		
	4. Did s/he stop drinking?	1. Yes 2. No 3. Don't know		
	5. How long before death did s/he stop drinking?	1. _____months 2. Don't know		
	6. Did s/he smoke tobacco (cigarette, cigar, pipe, etc)?	1. Yes 2. No 3. Don't know		
	7. How long had s/he been smoking?	1. For _____years 2.Don't know		
	8. How often did s/he smoke?	1. Daily 2. Weekly 3. Don't know		
	9. How many cigarettes did s/ smoke daily?	1._____ cigarettes 2.Don't know		
	10. Did s/he stop smoking before death?	1. Yes 2. No 3. Don't know		
	11. How long before death did s/he stop smoking?	1. _____months 2. Don't know		
13	**Housing conditions**			
	1. Homeless	1. Yes 2. No		
	2.Adequate ventilation (window area 15% of area of room, parallel window)	1. Yes 2. No		
	3. Adequate lighting (able to	1. Yes 2. No		

	read pencil written paper at anywhere within the house)			
14	**Expenditure-based poverty score**			
	1. How many people usually live with the household?	A. Nine or more(0) B. Eight (2) C. Seven (6) D. Six (9) E. Five (14) F. Four (21) G. Three (27) H. One or two (42)		
	2. What is the highest grade the female head/spouse has completed?	A. Four or less (0) B. No female head/spouse (0) C. Five or six (4) D. Seven to nine (10) E. Ten or higher(13)		
	3. What is the main material of the walls of the residence?	A. Stone with mud, stone with lime/cement, or cane/trunks/ bamboo/reed (0) B. Bamboo/wood, uncovered adobe, plywood, carton, no walls, or other(5) C. Cement, bricks, cement blocks, covered adobe, or wood planks /shingles (11)		
	4. What type of toilet facility do members of your household usually use?	A. Non-flush or none (0) B. Flush (5)		
	5. What type of fuel does your household mainly use for cooking?	A. Wood or straw/shrubs/grass, or animal dung (0) B. All others (5)		
	6. Does the household have a bed?	A. No (0) B. Yes (5)		
	7. Does the household have a radio?	A. No (0) B. Yes (8)		
	8. Does any member of this household own any land that can be used for agriculture?	A. No (0) B. Yes (6)		
	9. Does the household own any cattle, sheep or goats?	A. No (0) B. Yes (5)		

Thank you for your participation!

ANNEX III - AMHARIC VERSION QUESTIONNAIRE

በጎንደር ዩኒቨርሲቲ ህክምናና ጤና ሳይንስኮሌጅ

የህብረተሰብ ጤና አጠባበቅ ኢንስቲትዩት፤

<u>ቃለ መጠየቁን ከማድረግ በፊት የተሳታፊዎች ፍቃደኝነት መጠየቂያ ቅጽ፤</u>

ሰላምታ፤እንደምን አሉ? እኔ አቶ/ወሮ/ወ/ሪት_____እባላለሁ :: እዚህ የመጣሁት ይህንን ጥናት የሚያካሄደዉ የጎንደር ዩንቨርሲቲ የህብረተሰብ ጤና አጠባበቅ ኢንስቲትዩት ቡድን አባል ሆኜ ነው:: የዚህ ጥናት ባለቤት የጎንደር ዩንቨርሲቲ የህብረተሰብ ጤና አጠባበቅ ኢንስቲትዩት የመስተር ዲግር ተመረቂ የሆነዉ ሰብስቤ ታደሰ ሲሆን የዚህ ጥናት ዋና አላማ በሰሜን ጎንደር ዞን ዳባት ወረዳ የህብረተሰቡ የሞት መንስኤ የሆኑትን በሽታዎችን ለማጥናት ነዉ፡፡ በአጋጠሚ እርስዎም በዚህ ጥናት አንድሳተፉ ተመርጦዋል፡፡ የዚህ ጥናት ጥቅም ጥናቱ በትክክል አላማዉን እንድያሳካ የእርሶዎን ድጋፍ እንጠይቃለን፡፡ በዚህ መጠይቅ ላይ ስም መፃፍ አያስፈልግም፡፡ የማንኛዉም ግለሰብ ሓሳብ ብቻዉን ዩፋ እንድወጣ አይደረግም፡፡ ሀሳቡ ሙሉ በሙሉ በሚስጥር የሚጠበቅ ነዉ፡፡ በመጠይቁ ያለመሳተፍ ወይም በሙሉም ሆነ በከፊል ጥየቄዎችን ያለመመለስ ሙሉ መብት አለዎት፡፡ ተሳትፎዎ በፈቃደኝነት ላይ የተመሰረተና ምንም ጥቅመጥቅም የለዉም፡፡ ነገር ግን እርሰዎ ለጥያቄዎቹ የሚሰጡን ትክክለኛ ምላሽ የህብረተሰቡ የሞት መንስኤ የሆኑትን በሽታዎችን ከመለየት አልፎ በሽታን ለከለከልና ለመቆጠጣር የሚዘያዱትን መንገዶች ለመረዳት ይረዳናል፡፡ ስለዚህ ግልፅ የሆነ ምላሽንና ከልብ የመነጨ ተሳትፎዎን አነዲሰጡን በአክብሮት እንጠይቃለን፡፡ መጠይቁን ለመመላት ሊወስድቦት የሚችለዉ ጊዜ ቢበዛ 30 ደቂቃ ነዉ፡፡

ጥያቄ አለዎት? የዚህ ጥናት ዓላማ ተነቦልኝ (አንብቤዉ)ና ዓላማዉ ገብቶኝ በጥናቱ ለመሳተፍ፤

ሀ. ፍቃደኛ ነኝ ለ. ፍቃደኛ አይደለሁም

የመጠይቁ ተሳታፊ ፊርማ _____

የመጠይቁ ሰብሳቢ ሙሉ ስምና ፊርማ _____ቀን _____

የ መጠይቅ ኮድ ቁጥር _____

ተ.ቁ	ጥያቄ	አማራጭ	መልሶች	አስተያየት
	ክፍል 1. የተጠያቂዉ መረጃዎች፣			
1.	የተጠያቂዉ አድረሻ	1.የቤት ቁጥር 2. ቀበሌ 3. ስልክ ቁጥር		
2.	ከሚቹ/ጅ ጋር ያለህ/ሽ ግንኙነት?	1. አባት/እናት 2. ልጅ 3.እህት/ወንድም 4.አያት 5. ባል/ምስት 6. ጎሮቤት 7. አጎት/አክስት 8. ሌላ (ይገለፅ)		
3.	ሚቹ/ጅ በሚሞትበት/ባት ጊዜ አብረህ/ሽ ነበር?	1. አዎን ካሉ፤ ወደሚቀጥለዉ ጥያቄ ይለፉ 2. አልነበርኩም ካሉ፤ ሌላ በህመሙ ወቅት አብሮ የነበረዉን ሰዉ መፈለግ ከተቻለ		
4.	የሚቹ/ጅ የህመም ሁኔታ ምን ምን ይመስል ነበር? ይገለጽ	1. በመጀመሪያም የተረጋገጠ በሽታ ነበረበት ፤ይገለጽ		
		2. አደጋ ፤ይገለጽ		
		1. የህመም ስሜትና ምልክቶቹ ፤ይገለጽ		
5.	የጤና በለሙያች ግለሰቡ/ቧ በምን እንደሞተ ነግረዉ ነበር?	1. **አልነገሩም** 2. **አዎን ካሉ፡ ይግለጹ.**		
6.	ግለሰቡ/ቧ በምን እንደሞተ/ች ይገምቱ	1. የመጀመሪያ ግምት 2. ሁለተኛ ግምት		
7.	ግለሰቡ/ቧ **የት ነበር የሞተዉ/ችዉ?**	1. **እቤት ዉስጥ** 2. **በጤና ተቋም** 3. **ሌላ ቦታ** 4. **አለዉቅም**		
	ክፍል 2፡ የሞት ወይም የህክምና ሰርቲፊኬት መረጃዎች፣			
1.	የሚቹ/ጅ የሞት መስረጃ/ ሰርቲፊኬት ይኖረል?	1. አዎን 2. የለም 3. **አለዉቅም**		
2.	መስረጃዉን/ሰርቲፊኬቱን ማየት እችለለሁ?	1. **አትችልም** 2. አዎን. አዎን ካሉ፤ ሚቹ/ጅ የሞተበት/ችበት ቀን ፣ቦታ፣ዕድሜ ና የሞቱን ምክንያት ከሰርቲፊኬት ይመዝገብ		
3.	ሌላ ተጨማሪ የህክምና መስረጃ ይኖረል?	1. አዎን 2. የለም 3. **አለዉቅም**		

4.	ተጨማሪ መስረጃዉን ማየት እችለለሁ?	1. አትችልም 2. አዎን. አዎን ካሉ፣ ለእያንደንዱ የህክምና ክትትል መስረጃ የተከሙበትን የጤና ተkም መስረጃ መመልከት፣		
		1. የሆስፒታል/ ጤና ጠቢያ የህክምና መዘገ ወረቀት(አስፈለጊ ሁሉ መስረጃ)		
		2. ከመድኃኒት መዘገ ወረቀት		
		3. በሆስፒታል/ ጤና ጠቢያ ተኝተዉ የተከሙበት ና ድነዉ የወጡበት መስረጃ ከካርድ/ከመዝገብ		
		4. ከላቦራቶሪ መዘገ ወረቀት		
	ክፍል 3. ለአንድ ሞት ምክንያት የሚሆኑ ጠkሚ ነገሮች፣			
1.	የሚቹ/ቿ ዕድሜ 60 ዓመት ና ከዚያ በላይ ነበር?	1. አዎን 2. አይዶለም		
2.	የሚቹ/ቿ ዕድሜ 50-64 ዓመት ነበር?	1. አዎን 2. አይዶለም		
3.	ሚቿ 15-49 ዓመት ነበረች?	1. አዎን 2. አይዶለም		
4.	ሚቹ15-49 ዓመት ነበር?	1. አዎን 2. አይዶለም		
5.	ሚቿ ነፍሰጡር ነበረች?	1. አዎን 2. አይዶለም		
6.	በ 6 ሰምንት የእርግዝና ወቅት ነበር የሞተችዉ?	1. አዎን 2. አይዶለም		
7.	ሚቹ/ቿ ቢያንስ ለሶስት ሰምንት ያህል ታሞ ነበር?	1. አዎን 2. አይዶለም		
8.	ሚቹ/ቿን ለሞት የደረጋዉ በሽታ ከሶስት ሰምንት ያነሰ ጊዜ ታሞ ነበር?	1. አዎን 2. አይዶለም		
9.	ሚቹ/ቿ የሞተዉ /የሞተችዉ በድንገት ነበር?	1. አዎን 2. አይዶለም		
10.	ሚቹ/ቿ የሞተዉ /የሞተችዉ በክረምት ወቅት ነበር?	1. አዎን 2. አይዶለም		
11.	ሚቹ/ቿ የሞተዉ /የሞተችዉ በበጋ ወቅት ነበር?	1. አዎን 2. አይዶለም		
12.	ሚቹ/ቿ የሞተዉ /የሞተችዉ በጉዞ ላይ በተከሰተ አደጋ ነዉ?	1. አዎን 2. አይዶለም		

13.	ሚቹ/ቿ ተገልብጦ/ጣ ነነር?	1. አዎን 2. አይዶለም		
14.	ሚቹ/ቿ ወድቆ/ቀ ነበር?	1. አዎን 2. አይዶለም		
15.	ሚቹ/ቿ መርዝ ነገር ጠጥቶ ነበር ወይም በመርዘማ እንስሳት ተነድፎ ወይም ተነክሶ ነበር?	1. አዎን 2. አይዶለም		
16.	ሚቹ/ቿ ያጨስ/ተጨስ ነበር?	1. አዎን 2. አይዶለም		
17.	ሚቹ/ቿ ቁስል ነበረዉ/ነበረት?	1. አዎን 2. አይዶለም		
18.	ሚቹ/ቿ አልኮል ጠጪ ነበር/ነበረች?	1. አዎን 2. አይዶለም		
19.	ሚቹ/ቿ የሞተዉ/የሞተችዉ በሰዉ እጅ ነበር?	1. አዎን 2. አይዶለም		
20.	አዙሪት ነክ በሽታ ነበረዉ/ ነበረባት?	1. አዎን 2. አይዶለም		
21.	የተረጋገጠ አዙሪት በሽታ ነበረዉ/ ነበረባት?	1. አዎን 2. አይዶለም		
22.	ሚቹ/ቿ ራስ ምታት ነበረዉ/ነበረባት?	1. አዎን 2. አይዶለም		
23.	በግራና በቀኝ በኩል የጡንቻ/ የነርቭ ችግር የመጠ የሰዉነት መልፈስፈስ ነበረዉ/ ነበረባት?	1. አዎን 2. አይዶለም		
24.	የጡንቻ/የነርቭ ችግር የመጠ የአንድ በኩል ብቻ የሰዉነት መልፈስፈስ ነበረዉ/ ነበረባት?	1. አዎን 2. አይዶለም		
25.	ሚቹ/ቿ መጅረተ ገቲር ነበረዉ/ነበራት?	1. አዎን 2. አይዶለም		
26.	የአፍ ቁስለት ነበረዉ/ነበራት?	1. አዎን 2. አይዶለም		
27.	የጡንቻ መገተር/መንጋጋ ቆልፍ ነበረዉ/ነበራት?	1. አዎን 2. አይዶለም		
28.	የጸጉር መልክ ተቀይሮ ነበር?	1. አዎን 2. አይዶለም		
29.	ሳልና ደም የተቀለቀለ አክታ ነበር?	1. አዎን 2. አይዶለም		
30.	የደረት ህመም ነበር?	1. አዎን 2. አይዶለም		
31.	ከሶስት ሰምንት ያለፈ ሳል ነበር?	1. አዎን 2. አይዶለም		
32.	ሳሉ ለሶስት ሰምንት ያህል ነበር?	1. አዎን 2. አይዶለም		
33.	አክታ ነበር?	1. አዎን 2. አይዶለም		
34.	የአተነፈፋስ ስርአት ቶሎ ቶሎ ነበር?	1. አዎን 2. አይዶለም		
35.	የአተነፈፋስ ችግር ነበር?	1. አዎን 2. አይዶለም		
36.	ተንገሎ ስተኛ/ስትተኛ የአተነፈፋስ ችግር ነበር?	1. አዎን 2. አይዶለም		
37.	ማንኛዉም የአተነፈፋስ ችግር ነበር?	1. አዎን 2. አይዶለም		
38.	ማንኛዉም የጡት እብጠት ወይም ቁስል ነበር?	1. አዎን 2. አይዶለም		
39.	የአተነፈፋስ ችግር ወይም ስተነፋስ ድምጽ ነበር?	1. አዎን 2. አይዶለም		

40.	የትንፈሽ እጥረት ያገጥማቸዉ ነበር?	1. አዎን 2. አይዶለም		
41.	የሆድ አካበቢ ዕብጠት ነበር?	1. አዎን 2. አይዶለም		
42.	የሆድ አካበቢ ህመም ነበር?	1. አዎን 2. አይዶለም		
43.	ደም የተቀለቀለ ተቅማጥ ነበር?	1. አዎን 2. አይዶለም		
44.	ደም የተቀለቀለ ትዉከት ነበር?	1. አዎን 2. አይዶለም		
45.	ከሁለት ሰምንት ያነሰ ድንገተኛ ተቅማጥ ነበር?	1. አዎን 2. አይዶለም		
46.	ከሁለት እስከ አረት ሰምንት የዘለቀ ተቅማጥ ነበር?	1. አዎን 2. አይዶለም		
47.	አረት ሰምንትና ከዚያ በለይ የሆነና ተደጋጋሚ የሚከሰት ተቅማጥ ነበር?	1. አዎን 2. አይዶለም		
48.	የሆድ አካበቢ ዕብጠት ነበር?	1. አዎን 2. አይዶለም		
49.	ትዉከት ነበር?	1. አዎን 2. አይዶለም		
50.	የሰዉነት ብጫ መልክ ነበር?	1. አዎን 2. አይዶለም		
51.	ማንኛዉም የሽንት ችግር ነበር?	1. አዎን 2. አይዶለም		
52.	የሽንት አለመሽነት ችግር ነበር?	1. አዎን 2. አይዶለም		
53.	ደም የተቀለቀለ ሽንት ነበር?	1. አዎን 2. አይዶለም		
54.	የጉልበት/የቁጭምጨምት እብጠት ነበር?	1. አዎን 2. አይዶለም		
55.	ከጎን የቁጭምጨምት እብጠት የለም?	1. አዎን 2. አይዶለም		
56.	የቆደ ቁስል/የሚመግል ቁስል አለ?	1. አዎን 2. አይዶለም		
57.	የቆደ ሽፊተ አለ?	1. አዎን 2. አይዶለም		
58.	አልማዝ ባለጭራ ነበር?	1. አዎን 2. አይዶለም		
59.	የኩፍኝ ሽፊተ ነበር?	1. አዎን 2. አይዶለም		
60.	ብዙ የሆነ ሌሊት ላብ ነበር?	1. አዎን 2. አይዶለም		
61.	ብዙ ዉኃ ይጠጣ/ትጠጣ ነበር?	1. አዎን 2. አይዶለም		
62.	ብዙ ሽንት ትሸና/ይሸና ነበር?	1. አዎን 2. አይዶለም		
63.	ብዙ ምግብ ይበላ/ትበላ ነበር?	1. አዎን 2. አይዶለም		
64.	ድንገተኛ የትኩሳት ህመም ነበር?	1. አዎን 2. አይዶለም		
65.	ከሁለት ሰምንት የበለጠ የትኩሳት ህመም ነበር?	1. አዎን 2. አይዶለም		
66.	የሰዉነት ዕጢዎች ዕብጠት ነበር?	1. አዎን 2. አይዶለም		
67.	የፊት ዕብጠት ነበር?	1. አዎን 2. አይዶለም		
68.	ለ24 ሳዓታት የዘለቀ እራስን መሳት ነበር?	1. አዎን 2. አይዶለም		
69.	የሰዉነት መቀነስ ተከስቶ ነበር?	1. አዎን 2. አይዶለም		

70.	የደም መነስ/የመልክ መቀየር ተይቶ ነበር?	1. አዎን 2. አይዶለም		
71.	እንቅልፍ የመጠት ችግር ይታይ ነበር?	1. አዎን 2. አይዶለም		
72.	በዕድገት ወቅት ዝግመት ነበር?	1. አዎን 2. አይዶለም		
73.	የአስም በሽታ ነበራዉ/ነበረባት?	1. አዎን 2. አይዶለም		
74.	የስኳር በሽታ ነበራዉ/ነበረባት?	1. አዎን 2. አይዶለም		
75.	የልብ በሽታ ነበራዉ/ነበረባት?	1. አዎን 2. አይዶለም		
76.	የHIV በሽታ ነበራዉ /ነበረባት?	1. አዎን 2. አይዶለም		
77.	የደም ግፊት በሽታ ነበራዉ/ ነበረባት?	1. አዎን 2. አይዶለም		
78.	ከሆስፒታል በጠና ታሞ ወደ ቤት ተወስደዉ/ተወስደ ነበር?	1. አዎን 2. አይዶለም		
79.	የሞተዉ/ የሞተችዉ ታንቆ/ቀ ነበር?	1. አዎን 2. አይዶለም		
80.	በህይወት እያሉ ቀዶ ጥገና ተደርገዉ ነበር?	1. አዎን 2. አይዶለም		
81.	የቲቢ በሽታ ነበረባቸዉ?	1. አዎን 2. አይዶለም		
82.	አስፈለጊዉን ሁሉ ክትባት ወስደዉ ነበር?	1. አዎን 2. አይዶለም		
83.	የጉበት በሽታ ነበረባቸዉ?	1. አዎን 2. አይዶለም		
84.	የከንሰር በሽታ ነበረባቸዉ?	1. አዎን 2. አይዶለም		
85.	የኩላሊት በሽታ ነበረባቸዉ?	1. አዎን 2. አይዶለም		
86.	የወባ በሽታ ነበረባቸዉ?	1. አዎን 2. አይዶለም		
87.	ከወሊድ በፊት/በlለ ትደማ ነበር?	1. አዎን 2. አይዶለም		
88.	በወሊድ ወቅት ምጥ ከ24 ሰዓት በላይ ቆይቶ ነበር?	1. አዎን 2. አይዶለም		
89.	በወሊድ ወቅት እረሰóን የመሳት ችግር ነበር?	1. አዎን 2. አይዶለም		
90.	ህፃኑ የተወለደዉ ከ34 ሰምንት በፊት ነበር?	1. አዎን 2. አይዶለም		
91.	መንቲያ ሕፃነት ነበር ተወለዱት?	1. አዎን 2. አይዶለም		
	ክፍል 4. የሚች መረጃዎች፣			
1.	እድሜ በአመት	1. 14-49 አመት2. 50-64 አመት 3. ≥65 አመት		
2.	ጾታ	1. ወንድ 2. ሴት		
3.	ሀይማኖት	1.ክርስቲያን 2. ሙስሊም 3. ሌላ ካለ ይጥቀሱ		
4.	ብሔር	1. አማረ 2. ትግሬ 3. ሌለ &ይጥቀሱ		
5.	የጋብቻ ሁኔታ	1. ያገባ/ች 2. ያላገባ/ች 3. የፈተ/ች 4 የሞተችበት/ባት		
6.	የቤተሰብ ብዛት	1. 1-4 ቤተሰ2. ≥5 ቤተሰብ		

7.	የትምህርት ሁኔታ	1. የልተማረ 2.የመጀመሪያ ደረጃ(1- 8 ክፍል) 3.ሁለተኛ ደረጃ (9 - 12 ክፍል) 4. 12ኛ ክፍልና ከዚያ በላይ		
8.	መተደደሪያ	1. ገበሬ 2. የመንግስት/የግል ድርጅት ሰረተኛ		
9.	መኖርያ አካበቢ	1.ከተማ 2. ገጠር		
10.	ለጤና ክብከቤ የሚጠቀሙት	1. በህላዊ መድሐኒት 2. የጤና ተkማትን		
11.	የጤና አገልግሎት ሰጪ ተከም መኖርያ አካበቢ የሚርቀዉ	በኪሎ ሜትር		
12.	**ባህሪይን የሚመለከቱ ጥያቄዎች፣**			
	1ስጋራ ያጨስ/ተጨስ ነበር?	1. አዎን 2. አይዶለም 3. አለዉቅም		
	2. ለምን ያህል ጊዜ አልኮል ጠጥቶ/ታ ነበር?	1. ለ ____ዓመታት 2. አለዉቅም		
	3. ምን ያህል ጊዜ አልኮልን ይጠጣ/ትጠጣ ነበር?	1. በየቀኑ 2. በሰምንት አንዴ 3. አለዉቅም		
	4. አልኮልን መጠጣት ትቶ/ትታ ነበር?	1. አዎን 2. አይዶለም 3. አለዉቅም		
	5. አልኮልን መጠጣት ከመሞቱ/ቷ በፊት ለምን ያህል ጊዜ ትቶ/ትታ ነበር?	1. _____ወረት 2. አለዉቅም		
	6. ስጋራ አጭሶ/አጭሳ፣ትንባሆ ይጠቀም/ትጠቀም ነበር?	1. አዎን 2. አይዶለም 3. አለዉቅም		
	7. ከመሞቱ/ቷ በፊት ስጋራ መጨስ፣ትንባሆ መጠቀምን ለምን ያህል ጊዜ ትቶ/ትታ ነበር?	1. ለ ____ዓመታት 2. አለዉቅም		
	8. ምን ያህል ጊዜ ስጋራ ያጨስ/ተጨስ ነበር?	1. በየቀኑ 2. በሰምንት አንዴ 3. አለዉቅም		
	9. በቀን ምን ያህል ስጋራ ያጨስ/ታጨስ ነበር?	1._____ ስጋራ ፍሬ/ፓኬት 2. አለዉቅም		
	10. ስጋራ መጨስ ትቶ/ትታ ነበር?	1.አዎን 2. አይዶለም 3. አለዉቅም		
	11. ለምን የህል ጊዜ ስጋራ መጨስ ትቶ/ትታ ነበር?	1. _____ወረት 2. አለዉቅም		

13.	**መጠለያን የሚመለከቱ ጥያቄዎች፣**			
	1. መጠለያ የለዉም	1.አዎን 2. አይዶለም		
	2. በቂ አየርና መስኮት ያለዉ	1.አዎን 2. አይዶለም		
	3. በቂ ብርሃን የሚገበና መጸፍና መንበብ የሚየስችል	1.አዎን 2. አይዶለም		
14.	**የድህነት ደረጃ ከወጪ አንጸር፣**			
	1. ምን ያህል ቤተሰብ በአንድ ቤት ይኖረል?	A. ዘጠኝና ከዚያ በለይ(0) B. ስምንት (2) C. ሰበት(6) D. ስድስት (9) E. አምስት (14) F. አረት(21) G. ሶስት (27) H. አንድ ወይም ሁለት (42)		
	2. የእማወረ የትምህርት ደረጃ?	A.አረተኛ ክፍልና ከዚያ በታች(0) B.እማወረ የለችም (0) C. አምስተኛ ወይም ስድስተኛ ክፍል (4) D. ከሰበተኛ አስከ ዘጠነኛ ክፍል (10) E. አስረኛ ክፍልና ከዚያ በላይ (13)		
	3. የመኖርያ ቤታቸዉ ግድግደ የተሰረዉ?	A. ከድንጋይ፣ ከስሚንቶ፣ ከጭቃና ከቀርከሃ (0) B. ከቀርከሃ/ከእንጨት ሆኖ ጭቃ የተለጠፈ ወይም ግድግደ የሌላዉ (5) C. በስሚንቶና በብሎኬት የተሰራና ክደን ያለዉ (11)		
	4. ቤተሰብ የሚጠቀመዉ ሽንት ቤት?	A. ዉሃ የለዉም(0) B. ዉሃ አላዉ (5)		
	5. እቤት ዉስጥ ለሀይል ማግኛ /ለመብሰያ የሚተቀመጭት?	A. እንጨት፣ ጭረሮ ወይም የከብቶች እበት (0) B. ሌሎች ነገሮችን (5)		
	6. ለቤተሰብ አበላት አልጋ አለቸዉ?	A. የለቸዉም (0) B. አለቸዉ(5)		
	7. ለቤተሰቡ ሬዲዮ አለ?	A. የለቸዉም (0) B. አለቸዉ(8)		
	8. ቤተሰቡ የራሱ የሆነ የእርሻ መሬት አላዉ?	A. የለቸዉም (0) B. አለቸዉ(6)		
	9. ቤተሰቡ የራሱ ሆነ የቤት እንስሶች አላቸዉ?	A. የለቸዉም (0) B. አለቸዉ(6)		

ለተሰትፎዎ ከልብ አናማሰግነለን !